S'pore zooms in on cancer stem cells

Scientists here seek ways to combat growth of brain tumours

By Jalelah Abu Baker

SCIENTISTS here are edging closer to developing drugs to treat aggressive brain tumours by homing in on the special cells which cause them.

These cancer stem cells are responsible for the tumour's wild growth because they can generate new cancer cells. They are also resistant to conventional cancer treatments such as radiotherapy and chemotherapy.

The National Neuroscience Institute (NNI) and Singapore Institute for Clinical Sciences (SICS) have built up a bank of these rare cells by collecting samples from eight patients, with their consent. They are working with the Lilly Singapore Centre for Drug Discovery to study the cells.

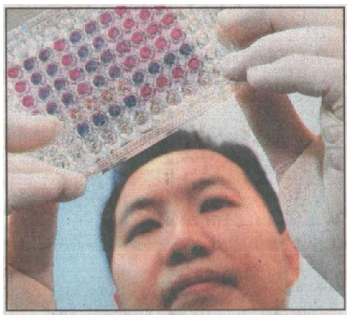
In the next 18 months, they hope to pin down what makes them so potent and find out how to kill them.

Such tumours are uncommon, and the survival rate of patients is dismal.

Even after operations to remove the tumour, chemotherapy and radiation, patients live on for only a year more because the cancerous stem cells cause the tumours to grow back.

Dr Carol Tang, head of NNI's Neuro-Oncology Research Laboratory, and Dr Christopher Ang, an NNI neurosurgeon, who are leading the effort, found a way to store these cancer stem cells. Through cryopreservation, a technique similar to that used to preserve eggs during in-vitro fertilisation, they have been able to build a stock of these cells for study.

"It is critical that the brain tumour stem cells do not become altered following storage and our team has described a technique where their character is preserved," said Dr Ang.



Dr Ang hopes the team's effort can help improve the quality of life for cancer patients. ST PHOTO: NG LOR LUAN

Cancer stem cells divide continuously, causing the growth of tumours.

Dr Ang, who is also a clinical investigator at SICS, said the first step to stopping these cells would be to uncover their genetic make-up.

Researchers from the Lilly centre – opened by pharmaceutical giant Eli Lilly and the largest lab of its kind here – will then try to find a drug to work against them, an effort led by chief scientific officer Jonathon Sedgwick.

Doctors here are excited by the potential of the study.

Dr Daniel Chan, associate consultant at the haemotology-oncology department in the National University Cancer Institute, said that if a new drug could do the trick without the need for extensive surgery or radiotherapy, this would "lead to a significant improvement in the patient's quality of life".

The researchers hope their work can be extended to other cancers. Dr Ang said: "What we may discover in research into brain tumour stem cells could potentially be extrapolated to cancer stem cells responsible for the formation of other tumours."

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